

REMARKS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-36, 52-87, 103-138 and 154 are presently being prosecuted, Claims 37-51, 88-102, 139-153 and 155 having previously been withdrawn from consideration, and Claims 1, 52, 103 and 154 having been amended by way of the present amendment. No new matter is added.

In the outstanding Office Action, Claims 1-4, 6-14, 16, 18-21, 24-26, 28-32, 34-36, 52-55, 57-65, 67, 69-72, 75-77, 79-83, 85-87, 103-106, 108-116, 118, 120-123, 126-128, 130-134, 136-138 and 154 were rejected as being unpatentable over Benveniste (U.S. Patent Publication No. 2003/0174690, hereinafter "Benveniste") in view of Nyman et al. (U.S. Patent Publication No. 2003/0037033, hereinafter "Nyman") and in further view of Kennedy (U.S. Patent Publication No. 2004/0057409, hereinafter "Kennedy"); dependent Claims 5, 15, 17, 22, 23, 27, 56, 66, 68, 73, 74, 78, 107, 117, 119, 124, 125 and 129 were rejected as being unpatentable over Benveniste in view of Nyman, Kennedy and in further view of Khun-Jush et al. (U.S. Patent Publication No. 2005/0054294, hereinafter "Khun-Jush"); and Claims 33, 84 and 135 were rejected as being unpatentable over Benveniste in view of Nyman, Kennedy, and Gubbi (U.S. Patent No. 6,934,752).

Claim 1, for example, has been amended and defines a wireless communication system having a plurality of communication stations as part of an *ad hoc* network. The respective communication stations transmit beacons with information concerning a network described thereon, the information includes indications of beacons received from the other communication stations that are part of the network, and each beacon including neighboring beacon information pertaining to beacon transmission times of neighboring communication stations.

Non-limiting support for the amendment is found in the present specification, for example the description of “NBAI field” beginning at page 38 of the specification. In an exemplary embodiment the NBAI field describes the position (reception time) of the beacon that is actually received by the local station based on the relative position of the beacon from the local station in the form of a bit map. While the processing of an NBOI field is described at the beginning of page 39, the processing also generally applies to an NBAI field. Moreover, Figure 6 shows beacon information transmitted from an apparatus may include neighboring beacon activity information (NBAI) which corresponds with NBOI information as indicated at page 39 of the specification. The NBAI information includes the reception timing position of beacons that can be received by the apparatus [0212]. A “1” is assigned to a bit corresponding to a relative position of the beacon that can be received when the beacon is received and “0” is assigned when the timing spacing is assigned thereto and the beacon is not received. An advantage with this approach is that an apparatus newly joining the *ad hoc* network is able to identify the positions of the different apparatuses that are already part of the network, and assist the newly added apparatus so as to inform the newly added apparatus at what space the newly added apparatus should attempt to transmit the beacon and avoid collision with other beacons.

As discussed in the previously filed Amendment, Benveniste operates on a different principal. Benveniste employs a process of “inquiry” in order for stations joining the network to find other stations [0020]. This “active inquiry” is used in Benveniste as a way to minimize inquiry time [0021]. As with the previous Office Action, the present Office Action relies on paragraph [0080] in Benveniste for its disclosure of the claimed “beacons indicative of information”. However, Benveniste is merely describing in this passage that stations are transmitting a special frame such as a beacon packet, but such beacon packets do not include indications of beacons received from other communication stations that are part of the

network. Furthermore, Benveniste does not teach or suggest beacons including neighboring beacon information pertaining to beacon transmission times of neighboring communication stations, as claimed in amended Claim 1 for example. Benveniste neither discloses this feature, nor would this feature assist in Benveniste's goal of avoiding "neighborhood capture" since it requires stations to release a particular channel at specified times [0072].

The Office Action relies on Nyman for a disclosure of an *ad hoc* network that does not use an access point to act as a central time source for the *ad hoc* network. Nevertheless, Nyman does not cure the deficiency discussed above with regard to Benveniste, with respect to beacons including neighboring beacon information pertaining to beacon transmission times of neighboring communication stations. Also, the Office Action recognizes that neither Benveniste nor Nyman teach or suggest a network including indications of beacons received from other communication stations that are part of the network.

For this later feature, the Office Action asserts Kennedy. However, Kennedy is directed to an intelligent communication node object beacon framework that builds routing tables for *ad hoc* networks. The main purpose is that the *ad hoc* network uses beacon signals including information "relating to a condition of the corresponding mobile node or group of nodes", and a condition of the mobile *ad hoc* network, such as information about the status of the links between nodes [0031]. The beacon signals include information regarding increasing a transmission rate or changing the transmission frequency or pattern [0033]. As a consequence, by using the beacon signals, node/group condition information may then be stored at each node so that route stability may be predicted over time. Moreover, stable routing tables may be constructed for transmissions through the nodes, especially when new nodes come on-line or are lost, and when transmission rate requirements change. While the beacon signals may be varied, the variation is one of transmission rate, transmission

frequency or transmission pattern to account for varying transmission rates or QoS [0012] and [0033].

None of Benveniste, Nyman or Kennedy teach or suggest “each beacon including neighboring beacon information pertaining to beacon transmission times of neighboring communication stations”. As discussed above, Benveniste would not benefit from such a feature, nor would Nyman or Kennedy, without improperly borrowing from the teachings of the present specification. Therefore, no matter how Benveniste, Nyman and Kennedy are combined, the combination does not teach or suggest all the elements of amended Claim 1.

Although of differing statutory class and/or scope, it is respectfully submitted that Claims 1-4, 6-14, 16, 18-21, 24-26, 28-32, 34-36, 52-55, 57-65, 67, 69-72, 75-77, 79-83, 85-87, 103-106, 108-116, 118, 120-123, 126-128, 130-134, 136-138 and 154 patentably defines over any combination of Benveniste, Nyman and Kennedy. As discussed in the Amendment filed April 13, 2009, Khun-Jush does not cure the deficiencies discussed above with regard to amended Claim 1, and therefore no matter how Khun-Jush is combined with Benveniste, Nyman and Kennedy the combination will not teach or suggest all the elements of Claims 5, 15, 17, 22, 23, 27, 56, 66, 68, 73, 74, 78, 107, 117, 119, 124, 125 and 129.

Likewise, Gubbi does not cure the deficiencies discussed above with regard to the independent claims, and therefore no matter how Gubbi is combined with Benveniste, Nyman and Kennedy the combination does not teach or suggest all of elements of Claims 33, 84, and 135.


Consequently, in view of the present amendment and in light of the foregoing comments, it is respectfully submitted that the invention defined by Claims 1-36, 52-87, 103-138 and 154, as amended, patentably defines over the asserted prior art. The present application is therefore believed to be in condition for formal allowance and an early and favorable reconsideration of this application is therefore requested.

Respectfully submitted,

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